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THE SOCIETY'S CHRISTMAS CARD

An order form for the Society's Christmas card is included at the end of this issue of the *Journal*. Colour proofs of the card are now available, and will be sent to Fellows interested in seeing them if they apply to the Secretary. A photograph of the painting which is the subject of the card was reproduced in the *Journal* on May 29th (page 450).

'SOME ACTIVITIES OF OTHER SOCIETIES AND ORGANIZATIONS'

A list of some meetings of other Societies is included at the end of this *Journal* in accordance with the annual practice whereby, starting with the first issue in October, such a list is published in each issue of the *Journal* throughout the Session. Announcements of a selection from the meetings of kindred Societies have been a regular feature of the *Journal* since it began in 1852. In the past, however, they have been limited to meetings at which papers or lectures have been read and it is thought that Fellows may welcome an extension of this section of the *Journal* to include announcements of such other activities as conferences, exhibitions, and film shows provided that these are arranged or sponsored by organizations sharing the interests and aims of the Society. The list of meetings which will be found on page 824 has accordingly been compiled with this in view.

TRAINING FOR SCIENCE AND TECHNOLOGY

The Trueman Wood Lecture by

SIR RICHARD SOUTHWELL, M.A., LL.D., D.Sc., F.R.S.,

Joint General Secretary, British Association for the Advancement of Science, delivered on Wednesday, 13th May, 1953, with E. Munro Runtz, F.R.I.C.S., Chairman of Council of the Society, in the Chair

THE CHAIRMAN: The Trueman Wood Trust, under which this afternoon's lecture is to be delivered, was founded from gifts by members of the Society's Council to provide an annual lecture in commemoration of the services of Sir Henry Trueman Wood, who was Secretary of the Society from 1879 to 1917 and who served it altogether for forty-five years. In accordance with Sir Henry's own wish the Council decided that the subject of the lectures should be connected with the application of science to the needs of civilization, and particularly with its application to industry. Although a classic by training, Sir Henry acquired a very wide knowledge and keen interest in the practical applications of science through his appointment for some years on the staff of the Patent Office.

The first lecture was delivered in 1917 by Sir Dugald Clerk on 'Discovery and Invention', and the list of lecturers since then includes such distinguished names as Sir Ernest Rutherford (later Lord Rutherford), Sir Alfred Ewing, Sir James Jeans, Sir William Bragg, Sir John Russell, Sir Harold Spencer-Jones and Sir Robert Robinson.

Our lecturer this afternoon is Sir Richard Southwell. He is also a scientist of very great distinction and the subject that has been chosen is one of which, I am sure, Sir Henry Trueman Wood would have very warmly approved: 'Training for Science and Technology'. This is a subject which needs no elaboration from me. We are all very well aware of the great services which Sir Richard has rendered to technological education in the Universities of Oxford and Cambridge, and finally as Rector for six years of the Imperial College of Science and Technology in London. His practical experience of the subject made him an invaluable member of the Percy Committee on Technological Education in 1944.

The following lecture was then delivered:

THE LECTURE

Greatly as I was pleased by your Council's invitation, my first feeling was of doubt whether on this subject—so much and so warmly debated in recent years—I could make any useful contribution. Training for industry, in so far as it concerns a university school of engineering, is a problem seldom out of my thoughts since the day on which I discussed it in an inaugural lecture-twenty-three years ago. But on that aspect I can say little that I have not said before, nor did I think that university curricula were what your Council wanted

me to talk about. The kindness of your Secretary has enabled me to learn something of your Society's history and to study that famous report[1] which charted a course for English technological education; and this reading confirmed my belief that what was wanted of me was a survey of industrial training as a whole—a field in which the task of the universities is but one of many.

To make the survey within the space I am allotted I must be content to state my views without defending them, even when I know them to be open to dispute. Not all will agree, for example, that in this field the task of the universities is but one of many; but I have said so since I believe it, braving the risk that some old colleagues will be displeased. I now state other beliefs that are still more likely to be disputed: that what we consider to-day is a *national* problem, and that our planning must have regard to ineluctable scarcities. If you reject this outlook, then almost all of my lecture will seem perverse; but if we really confront a national emergency, then (as in time of war) the question is not what we would like to do, but what we must. It is not enough that a thing be in itself desirable. Some things are not within our reach.

But to call a problem urgent is not to say that action should be precipitate, and in my judgement many of our present difficulties are chargeable to over-hasty tinkering. British institutions ripen slowly—like our fruits. Make sudden changes, and you risk frustration. 'He that will not apply new remedies must expect new evils; for Time is the greatest Innovator.' Yes, but the Chancellor continued: 'It were good . . . that men in their innovations would follow the example of Time itself; which indeed innovateth greatly, but quietly, and by degrees scarce to be perceived'.

Another conviction underlies all that follows: I hold that in every country the structure of technological education is (and should be) conditioned by the structure of its industry; and that this in turn is conditioned by its history and will not be understood except through study of it. More especially is this true when the country is our own, with its queer intuitive sense of long tradition. I say, in planning our educational structure we must have regard to the structure of *our* industries; and find it hard to be patient with proposals that would copy other nations without enquiry as to why their practice is different from ours. If it is better designed to meet like needs, then let us copy it by all means; but let us be certain, first, that the needs it meets are not also different.

Holding these views, I am apt to fulminate when a lengthening of the courses in our universities is proposed as a way to increase their output, or the building here of 'one or more great technological universities on the lines of Delft or Zürich or M.I.T.' is proposed as a way to meet a need of more technologists which is urgent because we have to correct a disequilibrium, to close the 'dollar gap'. This last scheme has been dropped, if one may judge by H.M. Government's announcement of last January:[2] none the less I record my conviction that the plan was bad, not one we should hope to implement in better times. How were these great new institutions to be staffed? Presumably, by enlisting teachers from abroad—that is, by incurring even more expenditure!

—for it can hardly have been intended to deplete our existing schools, or supposed that the same men would teach better in other buildings? To the dictum, that 'we ought not to cumber universities with the vast apparatus of instruction that is needed', I reply that no experienced teacher I have met believes 'vast apparatus' to be necessary—within the field of undergraduate teaching. There our concern is with principles, not with 'hardware'; and for instruction in principles the smallest apparatus is the best. (It is the physicists, with their cyclotrons and the like, who 'overload the campus' in these days.)

I have met no other argument except this: that our engineering schools for their own good (one recalls 'it hurts me more than it hurts you') had better be taken out of the universities and put in places where they will be much happier. I vehemently dissent: as I believe, nothing could be more disastrous to our industries than deprival of our engineers-in-embryo of the wider outlook and the growth in tolerance that come from informal association with men of other disciplines.

I am talking now of training to high level, and I say: 'Hands off our undergraduate schools': which are fitted to cater for our engineering industry because, in their planning, cognizance was taken of our history. For 'science pursued with a view to application', is no new problem for our universities: they had in it medicine long before the Industrial Revolution, and it is not by chance that their medical and engineering schools have come to adopt like schemes of training—both teaching only science in the undergraduate years, and leaving their 'practical know-hows' to be acquired in years of greater maturity, spent elsewhere. It is because the training must cover both an art and a science, and each (to be seen by the student as a thing that grows) should be studied in the place of its development: the science in universities, the homes of disinterested research; the art, where work is directed to practical ends—in hospitals and in works.

In engineering, our industrial structure stems from the craft-guild system of the Middle Ages. This collapsed, of course, in the Industrial Revolution; but still our consulting engineers take 'articled pupils' and our great electrical firms have 'apprenticeship schemes' wherein graduates take courses in industrial practice. So (and as I say, rightly) our university schools conform; and at Glasgow (I read[3]) the Principal thus addresses his engineering freshmen: 'Gentlemen, while you are with us we will teach you, or endeavour to teach you, something about engineering; you will become engineers after you have left us'. Is it not better that they should have this outlook, and train to learn, than expect (as the students do in places that I think it better not to specify) to spend four, or six, or even eight or nine years in the climate of a university?

Later, when they have gained some acquaintance with industry, and each has a notion of the niche he wants to occupy, then is the time for study of its specialized techniques. Until then they can have no real understanding (though they will glibly reproduce what they are told) of the subtle factors which enter into 'design', the still less tangible factors in 'industrial relations'. They who would lengthen undergraduate training seldom urge that this would permit a

lighter load: I, believing three years to be enough, have consistently stressed the need to leave, in lecture-lists, time for the 'extra-curricular activities' which foster that elusive thing we term 'personality'. Our task is to train for leadership in industry, which calls not only for knowledge but for wide-spread interests and sympathies.

But this is not to deny the need of training to high level in the specialized technologies of industry; and here I believe we can learn from other countries—always provided we do not copy blindly. We do need to expand our national provision in the fields where new discoveries are applied. In my own day there was nothing of the kind, and still it is only at one or two British universities that courses (as contrasted with thesis work) are offered to postgraduate engineers. They seem to have been outstandingly successful—in the view of the few that have been privileged to take them. But hardly so successful in a wider view: for they presume a release of men from industry, and so far only a few industrialists have 'played'.

Here, I come to the stiffest part of my lecture, for my views on postgraduate training will be unacceptable to colleagues who would subscribe to much of what has gone before. But I urge the need to approach this problem with an open mind. If we do, then we shall find it, I believe, not primarily a problem for our universities.

I am not talking, now, of thesis work or of courses (like the few that have been started) in the higher theory, say, of fluid dynamics: courses concerned with the sciences underlying application, that call for no 'vast apparatus of instruction'. I am talking of courses that do make such demands—courses concerned with actual applications, 'practical know-how'; and I say that these should be given near to works (or to one of our big institutions of research) where the latest 'hardware' and processes may be studied, and creative techniques like that which we term 'design' can be taught by men that practise them—and accordingly must teach them—in the course of a working day. Manifestly, such instructors cannot make long journeys: the students must come to them.

This means that for advanced instruction of this sort we must contemplate 'monotechnics' (perhaps incorporated in 'up-graded' technical colleges), since different industries are located differently. Why not? I have said that I want our undergraduate engineers to have time for their wider education; but now I am talking of students altogether more mature. Their need *is* specialized instruction —and their time is precious; they are 'launched' and (unless unfortunate in their universities) they will have already discovered wider interests and the means to their pursuit: I see no case for moving them to universities, to be taught by men who do not practise what they teach. For industrial progress necessitates obsolescence: not only 'hardware' but processes must be scrapped when something more efficient comes along. Only a man who has day-to-day contact with industry can teach its latest refinements of technique. Teachers as well as machines get out of date, and efficiency is difficult to reconcile with the security

of tenure to which (rightly) universities attach such great importance. So long as he is concerned with the underlying science, a university teacher of engineering can make contributions throughout his working life. But application is another matter: it cannot be prosecuted *in vacuo*.

Here, perhaps, is the place for some mention of 'design' (the best word I can find for that admixture of science and creative art which to me stands for the highest manifestation of technology), because I feel bound in honesty to express dissent from views expressed by a man of much wider experience and knowledge —Sir David Pye, once my teacher.[6] His thesis, if I have understood it rightly, is that engineering is not a science but a creative art, as distinct from scientific discovery as the art of the painter is from art-criticism; and that our universities have erred by laying undue emphasis on the basic science and, more particularly, on mathematics. This seems to me to presume what I believe to be not the fact: that universities provide the only approach to the higher levels of engineering, therefore should plan their courses to suit the needs of men whose gifts we would all agree in thinking exceptional.

As I say, I too regard this flair for design as the mark of supreme capacity in engineering, a thing to be fostered as our most precious asset. But it seems to me to be, like every creative gift (and with it I would include the gift of invention —a thing quite different, as is shown by its rarity, from the power to apply accepted scientific discoveries), an unaccountable and unpredictable faculty, quite outside the range of 'planning'. How can it possibly be fostered inside universities by men who, if they possessed it, would employ it elsewhere? Like any art it is a form of self-expression, and he who has it must fulfil himself in doing: which here means that his *atelier* is industry, where alone real problems arise and call for it. Men learn by watching a great surgeon: but at post-graduate level, when trained to learn. I say, the fact that genius for design sometimes reveals itself in youth does not mean that undergraduate courses should be warped to suit men of a type that is exceptional. I would be the last to maintain that the systematic approach is the best path for all men and to every objective. What I do say is that it is the proper path for universities, and that special provision is needed for special gifts.

What then, in sum, do I see as the role of the universities in a national plan for training in technology? Briefly, as G.H.Q. of the 'science which is pursued with a view to application', *not* as having direct concern with applications. Their teaching at the undergraduate level should aim to instil a knowledge of basic principles and power to grasp the essentials of a problem. Like medical schools, they are training men not to practise but to learn: to learn an art which calls for more than technical erudition.

They will also train at the post-graduate level: not only (as in the past) by supervised research of the kind that results in theses, but also (what a few have started already) by courses in the harder and newer parts of applicable science. To this end their teachers will keep close contact with the monotechnics and,

through them, with industry; both as advisers and by visits in which they will learn of new industrial problems. It is they who must make the visits, since 'industrial hardware' is not movable, nor are the men in industry as free as they to travel; and they should provide for 'secondment' to the monotechnics of post-graduate students whose bent is towards the more severely practical, so that these too may learn about recent tendencies in design. They are the G.H.Q., and their 'headquarters troops' must be mobile.

Finally, in their plans for an increased output I would hope that they will be chary of using constant multipliers. In undergraduate courses I should have as little as possible of differentiation, because it is only after some contact with industry that the best men, in my experience, discover their special bents. But when this undifferentiated output is increased, surely it is (to say the least) not certain that the same proportion should elect (for example) to work on paper theses? I myself confess to doubt whether even now more are not encouraged to do so than the national interest demands. I think we copied too hastily, in the 'twenties, a scheme of higher degrees which was designed to suit the purer sciences; and made too little provision for the needs of men whose bent is towards the research that results in 'hardware'.

Too much is made, I think, of what a transatlantic visitor[7] has termed our 'social stratification of scientists and engineers' (he finds it less evident in Scotland). That is why I have not spent time on the question of awards, notwithstanding that it all but filled the horizon of an important committee which reported last year. But I do suspect that 'social stratification' (combined, perhaps, with reluctance to spend labour on a plan to suit special circumstances) underlay this failure to make adequate provision for the needs of what I here call 'hardware research'.

Perhaps I have prejudiced views about 'advanced degrees'. (I mean, in engineering: I offer no view in regard to the purer sciences.) But recently I have spent three summers in America, and having myself to do a job of teaching I found myself on easy terms with the young teachers who came to my lectures from various universities. I was shocked (no weaker word will do) by the cynicism many—and some of the best—expressed regarding the M.Sc. and Ph.D. as they had met these in the course of their careers; and could feel no assurance that we too shall not be faced, in time, with the sort of situation that they described to me. Which is this: that what should be evidence of ability for research has come to be an essential qualification for posts which do not call for such ability and will give no opportunity to use it: with the result that men become candidates for Ph.D.'s who, if successful, will not apply that training, and the time of teachers is spent in devising 'fool-proof' problems guaranteed to 'come out' within a specified time. I myself have observed some indication of that tendency; which to me is the negation of research, and in no real sense a training in technology.

So much for what I have said that I regard as the widest gap in our technological education. But our need is not of 'higher technologists' only, even if we

include among them the men who, after a three-year undergraduate preparation, go into industry and stay there. I have urged[3] that in planning education for *our* industries we must have regard to *our* industrial structure; and I have said[3] that this had its origin in the medieval craft-guilds—so is rooted in a long tradition of skilled craftsmanship. It is because I see this fact as all-important that I distrust proposals to copy, blindly, the structure of American industry, which had its origin in a scarcity of skilled labour (as was inevitable in a land of lonely settlers) and coped with that scarcity by methods—'mass-production'—whereby the hard thinking of a few reduces the need of craftsmanship in the many. (It presumes in addition—a fact too often overlooked—a nation-wide demand assured by protection and by intensive salesmanship; and might be fatally damaged—as the early 'thirties showed—if America ever came to practise a nation-wide 'austerity'.)

Our structure—and it cannot be altered rapidly—is based on a tradition of *plentiful* craftsmanship. Now craftsmanship calls for very high intelligence: but not for intelligence of the sort which it is, or should be, an aim of universities to foster. I do not dispute that some industries have been slow to recognize their need of 'higher technologists': none the less I am sure that their leaders are right who urge that the university product is not enough. I am convinced that this country would risk industrial disaster if its whole reserve of intelligence were directed into what were once called 'white-collar occupations'.

But this, to judge by pronouncements from the universities, is precisely what is happening! Here is the situation as seen in 1952[4] by the Vice-Chancellor of the University of Belfast: 'In the welfare state it is becoming positively difficult for a reasonably bright boy (provided he remains at school) to *avoid* going to a university. . . . Many . . . students come . . . not because they want to be scholars or professional men, indeed not because they want higher education at all, but because they are among the top nine per cent of the Nation's intelligence, and the State is financing them to come'. That the menace is urgent he showed by figures for 1951: 'The reservoir of persons 18 years old has *decreased* by 74,000; the number from this reservoir who entered universities has *increased* by 12,537'.

Dr. Ashby, fearful of the effect on educational standards, doubts if the new responsibility should be accepted. I, admitting the gravity of that threat, am concerned now with the harm that will be done to the nation's industries if all of its reserves of intelligence come to be thus canalized. Not all skills vital to our national economy are best acquired in the university atmosphere: engineering, for example, needs skilled tool-makers—the more as its operations become more complex. We risk disaster if we overlook the importance to our economy of craftsmanship.

So I am forced to end this lecture on a note you may deem pessimistic: better so, than keep silence regarding dangers that, as I think, are menacing but not irremovable, since they come from over-hasty tinkering with the structure of our education. Before the war, when proposing innovations, one could presume that

structure to be stable, postulate its power to sustain them. To-day I cannot take that care-free standpoint; not only because its permanence is conditional on our solvency (which in turn depends on our industries and, through them, on our educational structure), but because we have altered the structure right down to its foundations, which are the schools. There already, teachers are so scarce that quite soon our universities may have to lower their standards of admission.

I can be brief, for figures are hardly suited to a spoken lecture, and the facts were set out clearly, last December, in a *Nature* editorial.[8] They are grim; and indeed to me they stand for the greatest of the dangers now confronting us: a danger that, if not strictly of our own making, might at least have been foreseen. Some 250 posts for science teachers will be vacant through this school-year. Only 39 per cent of the teachers who started last September (as compared with 55 per cent before the war) had first or second-class degrees. The shortage leads to continuous movement from one school to another: one leading State grammar school has had five chief science masters since 1942. In girls' schools 120 posts remained unfilled. Too many good teachers are more than 50 years old, so will be lost within the next 10 or 15 years. I add, from *The Times* of March 26, that of 482 honours graduates in science who left Oxford in 1952 only 17 took teaching posts in schools.

I say, this might have been foreseen. Since the war one after another of our publicists has talked of the 'backwardness of British industry', the 'gap between research and application', and our need of a larger output of technologists. Manifestly this presumes a steady output from the schools: yet, to the extent that their sayings have been heeded, the schools have been stripped of the men on whom it depends—their science teachers. No one seems to have thought about 'growing for succession': we have been eating our seed-corn, and if famine results we cannot disclaim responsibility. Here is what *Nature* sees as a possible outcome—a dismal chain-reaction: This decline in the quality of teachers may lead to a drop of attainment in the science specialists of schools, so that fewer will gain admission to universities. These in turn will produce fewer graduates, so fewer teachers of science will enter the schools. 'We shall then have slipped back to the position which existed in 1900 . . . . and the fruits of 45 years hard work . . . . will have been thrown away.'

This is a greater menace to educational standards, I would have thought, than the present overcrowding, or the fact deplored by a former Vice-Chancellor of Southampton: 'It has rather put into the minds of the students, and certainly into the minds of ourselves, that our job is . . . . turning out graduates trained to particular specifications'.[5] To me his account suggests that the universities (at some time unspecified) showed an equal disregard of manpower: 'How did it begin? The Barlow Committee said the community needed more physicists, engineers and the like, and that the universities must get on with it, and double in ten years the population of science students. Somebody said (it is this to which I draw attention), "Well, of course, if you do that you will get the universities out of balance and therefore we had better take in a lot of arts students as well; let's double the university population." ' Whoever the 'somebody' was, to me

that dictum seems deplorable. I am by no means certain that a like increase of arts students was not dictated by a national need; but to treat as absolute a 'balance' which simply reflects the economy of a less straitened age is to show a complete disregard of actualities. It is to assume the throne vacated by King Canute.

I end, then, as I began—on a note of urgency. Our problem must be solved, for our economic survival will depend on how we react to altered circumstances, the aftermath of two exhausting wars; and can be solved, for we have the needed skills, also institutions peculiar to ourselves—for example, our research associations—which could contribute much to a national scheme of training, would we but look at that problem as a whole. It will not be solved if we approach it in the slap-dash manner of most of our so-called 'planning' since the war.

Of late we have seen some signs of a return to sanity, of a readiness to live within our means. I have urged that we still have to adopt that attitude in respect of another 'scarcity'—our inexorably limited man-power, which nothing we can do now will much affect within the next ten years. Lord Rutherford used to say, regarding science in this country: 'We get no money, so we *have* to think'. In his later years he would admit that things were not too bad, but his point remained, and he held to it: there is no substitute for thought. I say that another scarcity gives us double cause to need his outlook now.

THE CHAIRMAN: Whether or not you agree with Sir Richard Southwell, you will concur that he has delivered a very penetrating paper. I am particularly interested in his reference to the Mechanics Institutes, for this Society indeed played a great part in their progress and consolidation. One of the earliest of these institutes was, I believe, the Birkbeck, and I will touch on a personal note in this respect because when I was a youngster I was told that my paternal grandfather was a lecturer in that Institute. This Society has always encouraged craftsmanship and continues so to do.

Many members of my Council are in agreement with the lecturer's thesis and consider that as a country we should seek more and more to train and improve our craftsmen and, generally speaking, not try to compete with the great mass-producing countries, but, through our historical background, to provide goods of excellent design and quality, such as others cannot produce. Bearing in mind the difficulty we find in paying for our imported raw materials to-day, is it not more than ever necessary to make the best use of them?

I propose a very hearty vote of thanks to our lecturer for a most interesting paper.

The vote of thanks was carried with acclamation, and the meeting then ended.

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2. *The Times*, 30th January, 1953.
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4. *Ibid*, pp. 27–28.
5. *Ibid*, p. 79.
6. Inst.Mech.E. *Proc. (A)* vol. 166, No. 3, 1952. Presidential Address to the Institution of Mechanical Engineers.
7. Prof. R. L. Meier (Chicago University): *Research as a Social Process, Brit. J. Sociology*, vol. 2, No. 2; reprinted in *Research*, vol. 4 (1951).
8. *Nature*, 27th December, 1952.

SOCIAL CHANGES IN THE WESTERN PACIFIC

A paper by

RAYMOND FIRTH, M.A., Ph.D., F.B.A.

Professor of Anthropology, University of London, read to the Commonwealth Section of the Society on Thursday, 12th March, 1953, with Sir Keith Hancock, M.A., Litt.D., F.B.A., Professor of British Commonwealth Affairs, University of London, and Director, Institute of Commonwealth Studies, in the Chair

THE CHAIRMAN: It is a very great pleasure for me this afternoon to take the chair for Professor Raymond Firth. Indeed, I have been wanting for some time to hear him lecture on this subject and I made certain that I would do so by taking the chair to-day.

Professor Firth is a New Zealander. I am an Australian. We first met in England —perhaps there is a moral to that. But I had been familiar with some of his writing for many years before I met him. I discovered a most exciting and delightful book, his first book, called *Primitive Economics of the New Zealand Maori*. Then there is another book of his which has achieved fame, *We the Tikopia*, and just last year he was back again in Tikopia studying the changes that had taken place in that small island during the twenty years or so since he last visited it.

I shall not attempt to give a biography of the lecturer. You are anxious to hear him speak for himself. I shall, therefore, now ask him to speak on his subject, which is Social Changes in the Western Pacific.

The following paper was then read:

THE PAPER

The Second World War brought major changes into the lives of the native peoples of the Western Pacific. Even apart from this, the influences of commerce, Christian missions and the Governments have had an immense cumulative effect over the last century. An analysis of the main changes, and of the social processes at work, is important, for two practical reasons. One is that much of the Western Pacific is administered by members of the Commonwealth, and we have an interest in those local problems. The second reason is that the native peoples there have shown some originality in their reactions to civilization, and a more exact knowledge of those reactions bears on the wider question of the chances of achieving our democratic and humanitarian aims in the less developed parts of the world to-day. There is also another reason, less practical, but of even more concern to me as a social anthropologist: the varieties of combination of rational and irrational elements in the activities

of these people are very illuminating for our understanding of human behaviour.

For the most part, my discussion refers to New Guinea and the Solomon Islands, where most of my personal experience has been.* But I think that as far as major trends go, some of the conclusions will be found to apply more generally.

Let us consider briefly some of the modern goals of the people of the Western Pacific, and their implications.

The first point to be made is that these people are now, without exception, committed to the *material* civilization which is the hall mark of the West. There was a time when white men, not least anthropologists, could talk of leaving the more isolated groups of the Western Pacific alone, so that the natives would not be disturbed and destroyed by our interference. That time has long passed. Every Pacific community has declared its avid interest in the goods of the white man. In the most remote areas it is little more than the traditional trade goods that are in demand—axes, knives, calico, beads, tobacco. But so far has this gone that even in the remote interior of New Guinea there are few stone tools in use to-day; they have been replaced by steel. On the isolated islands of the Solomons, such as Tikopia (where I lived for a year a generation ago, and recently again, for some months), mosquito nets and electric torches used to be looked on as white man's goods alone, whereas now they are regarded as legitimate native requirements. Native people near the towns such as Port Moresby or Rabaul have a keen interest in a wide range of clothing, foods, toys, musical instruments, bicycles, and tools. Though dwellings are still for the most part of a simple thatch type, a few of more elaborate structure are symptomatic of standards towards which native consumers are beginning to rise. One such I saw near Rabaul, of asbestos board and corrugated iron roof, neatly finished and tastefully painted. It was built for a chief by his three sons, all trained in mechanical crafts, and the cost, which was mainly in materials, was £300. Another house, the property also of a chief in the same general area, was two-storied, of timber and plywood, with concrete foundations and good solid floors and stairs; this had a kerosene refrigerator, which worked, and the total cost was about £1,000.

A second point is that native political aims are changing. Until recent years most government of natives in the Western Pacific was by direct control, with nominated headmen or other agents as intermediaries. Even when there was some measure of responsibility for local affairs, it was only in minor matters. In many spheres natives and non-natives were subject to different laws. In taxation, regulations about firearms and liquor, rules for marriage and divorce, treatment of adultery and many other offences, provision was made for natives quite distinct from that for other members of the society. Natives had no part, either as representatives of their own people or as citizens of the wider community,

* The recent field work on which this paper is based was done as part of my association with the Research School of Pacific Studies of the Australian National University, to which I am indebted for this opportunity. I am also indebted to the authorities in Papua and New Guinea, and in the British Solomon Islands Protectorate, for much help in my travels and inquiries. I am grateful, too, to my colleagues Professors J. W. Davidson and O. H. K. Spate, and Mr. J. Spillius for helpful comments.

Housing on the Gazelle Peninsula, New Britain. A modern house, using corrugated iron and sawn timber, and Western style windows, but retaining traditional palm thatch for walling

in decisions on territorial policy. Nor did they show any particular interest in these matters. Since the war, in particular, native political attitudes have taken on a wider scope and a clearer definition. There is much keener interest in securing local executive and even judicial functions. Some natives are concerned with major policy issues, especially in education and economic development. The war, especially by the entry of United States forces into the Western Pacific, brought home the notion of differences in national sovereignty and national attitudes between white men. In some native minds it gave rise to at least the theoretical possibility of change in political allegiance. There has been some positive response to this by Governments. A strong development of Native Councils has been fostered in some areas. Natives have been appointed to the New Guinea Legislative Council, and to the Advisory Council of the British Solomon Islands Protectorate. Yet these measures, mild as they are, have not gone without challenge by some Europeans as giving the native responsibility at too fast a pace. On the other hand, from the native side it still appears that the real direction of affairs, at both the local and the central levels, remains in European hands.

Underlying much of this new atmosphere is the alteration in the native income structure. Since the beginning of the war there has been a great increase of overall native income in monetary terms, and to a considerable extent, also, in real terms. This is largely a direct reflex of the world increase in raw material prices. A quarter of a century ago the local price of copra in the islands was generally

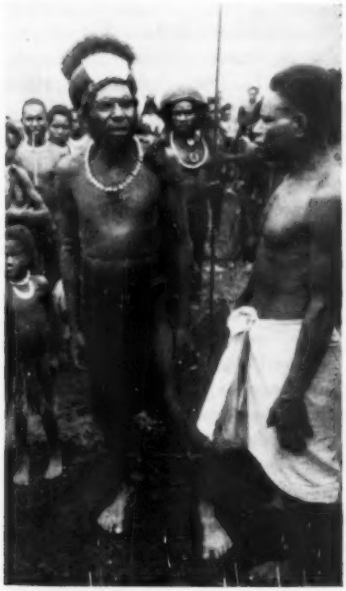
less than £20 per ton, and in the depths of the depression years it went at times to even below £5 per ton. But recently copra has been fetching more than £60 per ton on a guaranteed price basis, and very much more at times on the free market. Native copra producers in New Guinea, New Britain and the other western islands, have taken full advantage of this situation and, with relatively low overheads, have increased their net incomes accordingly. Similar income changes, though on a much smaller scale, have taken place with trochus shell and green-snail. And a few natives have begun to get a substantial income from a new crop in the Western Pacific—cocoa. The price reaction has also been felt in the labour market. Before the war, it was common for unskilled labourers in the Solomons and New Hebrides to receive £1 per month in cash wages and to be 'found' with rations and a few other supplies. Similar labourers in New Guinea got substantially less. Now after the war, these rates have been doubled or trebled. Moreover, there has been extension of the scale. Semi-skilled labour—cooks, launch-boys, hospital attendants—get considerably more, while in New Guinea at least, skilled men, such as carpenters, plumbers and electricians, can earn £20 a month or so at wage or contract rates. Though they must then provide their own housing and food, it is clear that at these levels the labour *élite* are beginning to touch the fringe of European conceptions of appreciable income.

But another reason for the increase in native incomes is the provision by natives of goods or services of a new kind, for cash, in a way unknown before. During the war, some natives received payments of some size for laundry or other services rendered to troops, while others made a considerable income by the sale of curios. At the present time one way of getting an income is by the supply of fish or vegetables to a cash market, either European or native. A year or so ago the relatively primitive highlanders near Mt. Hagen were growing cabbages, melons, cucumbers, and bringing them in to the government station to exchange for money. Some got as little as threepence apiece, but others, men of rank with families to work for them, took as much as one pound or more. The vegetables were flown down to the coast by air, to help to supply the European population at Lae. The results were not always successful, since at times a glut threatened to kill the market. But it was estimated that with proper outlets a minimum supply of a couple of tons of such vegetables could be maintained each month, at rates which would yield about £200 to the local natives within a radius of five miles or so from the station. Near Rabaul a regular market has been established, served by the local Tolai people with a great mass of fruit, vegetables and other produce. Buyers and sellers number several thousand, and the local European and Chinese population mingle with the throngs of Melanesians. The market is notable in another way: tobacco, cowry shells and cash all serve as media of exchange. In the neighbourhood of Port Moresby an energetic man with a garden can take between fifteen shillings and two pounds per day, depending on the season, if he hawks from door to door his mangoes, tomatoes, bananas, sweetcorn and pumpkins. And a fisherman can get up to ten or fifteen shillings for a good mullet, from native buyers themselves.* A type of service

* C. S. Belshaw, *Port Moresby Canoe Traders*, Oceania, XXIII, 1952, 26–39

which has contributed significantly to native income is transport. The hire of a native sailing canoe, or a cutter, along the coast brings in from ten shillings to five or ten pounds, depending on the saleable nature of the cargo, the distance, and the time taken. At times these canoes are hired by Europeans. A peculiarly post-war phenomenon in the transport field is the ownership of large motor-trucks by New Guinea men. These earn considerable incomes by the carriage of passengers and goods, including some European goods. In a village about five miles out from Port Moresby, for example, there are four trucks, native-owned; they are hired out at a pound a trip to the town or at a shilling a head if the party is a large one.

These developments of native enterprise have had an effect on the general labour market. While the demand for plantation, mining and public works labour seems as keen as ever, there has been a definite falling off in supply, especially of unskilled labour. In some areas, especially those in which a 'Cargo cult' or analogous movement developed after the war, there was a disinclination



Left: ***On the Fringe of Civilization.*** *New Guinea natives on the airstrip at Mendi, a newly opened government post in the Highlands, showing the contrast with the calico-dressed man in European employment*

Right: ***The Advent of Western Technology.*** *A Tau'ade-speaking man near Tapini, inland Papua; he wears a leather belt, has a steel-headed axe, and is smoking a newspaper-rolled cigarette in a native bamboo pipe*

to work for the white man as such. But for the region as a whole the opportunity of alternative occupations, offering a greater return or more attractive work, has probably been more important. Much more investigation, of the kind Dr. Belshaw has done in Milne Bay and near Port Moresby, is needed to establish precisely the degree to which such alternative occupations offer valid preferences. But the shortage in supply may well be a function of several related variables: disinclination to accept low-wage employment in the light of modern native standards of consumption; inability of employers to pay higher wages for labour of low efficiency; lack of an adequate training system to fit labour for more skilled work; lack of enough general education to allow them to take proper advantage of training and give them understanding of incentive-output-cost relationships. The situation is complicated by three further elements. One is the fact that in some of the new reservoirs of unskilled labour supply, as in Chimbu in the New Guinea Highlands or Tikopia on the distant south-eastern fringe of the Solomon Islands, to go away and work for the white man is still an adventure, attractive as much for the new experience abroad as for the wages earned. The result is that, unused in any case to European standards of regular hours and diligence, much of this labour is of low quality. The second element is the lack of any clear general policy, among European residents in the islands, of training to raise the general technical standards of the natives. Many Europeans seem quite content that the natives should continue indefinitely to supply unskilled labour, and that no attempt need be made to integrate them more fully into the technological patterns of the economy.* The third element is the apparent lack as yet of any clear notion of what should be, or is likely to be, the broad distribution of native manpower through the economy. One hardly ever hears such questions asked as these: What proportion of the people should be engaged in peasant or native plantation agriculture? What in European enterprises of a private character? What in public works? What therefore should be the relative inducements offered to attract the people accordingly?

What has just been said will have indicated some of the impediments still in the way of the direct advance of the Western Pacific native to economic and social standards comparable to those of Europeans, or even markedly superior, for the mass of the people, to those which they have at present.

Something more may be said here about the educational factors. There is no colour bar in labour in the Western Pacific, and it is not too far-fetched to anticipate the time when all mechanical work, of whatever grade, will be done by New Guinea or Solomon Islands men. But as yet the technical training offered is elementary and for the most part rule-of-thumb. In speaking of the kerosene refrigerator earlier, I thought it advisable to say that it worked. The low level and sparse distribution of mechanical skills among the natives of the Western Pacific often mean that their equipment is poorly serviced. Yet this is not inevitable. Oil engines in boats, for instance, are often carefully looked after. Capacity

* I was struck in New Guinea by the way in which much work that could be easily performed by trained natives—e.g. serving behind shop counters, driving motor vehicles—is performed by high-cost European labour, often imported especially from Australia.

and interest are there: they need development and on a much wider front.* Outside the technical or mechanical sphere, the standard of education is still inordinately low. The gap between what is taught in the schools and the complex requirements of a modern social life is still immense. One retarding factor here is 'pidgin-English'. This has developed sufficient individuality to be considered a language in its own right, and is capable, especially in native use, of a high degree of fluidity in expression. Perhaps its greatest service is the ease with which its rudiments can be learned by any native, and its use as a unifying medium. But great as its developmental contribution has been in the pioneering phases of the Western Pacific, it is definitely inadequate as a long-term investment. Its most obvious and greatest defect is that its user has no key to any but the most restricted literature; the riches of English thought are barred to him, let alone the stores of general knowledge contained in even an ordinary newspaper. The native desire for education, especially education in English, is keen, and during the last generation the proportion who have received some kind of higher education has risen appreciably. But it is still far too small a fraction. One reason is of course the great discrepancy between the cost and the capacity of the people to pay. To break the vicious circle of economic and educational inadequacy may require more substantial and better planned financial outlay than at present.

One factor retarding the economic and social advance of Western Pacific peoples is poverty of natural resources. It is coming to be general knowledge that limitations on agriculture in the Western Pacific, as elsewhere in the tropics, are fairly severe. Soil exhaustion and soil erosion are taking their toll. The disturbance of an ecological balance by man is accentuated by the change-over from stone to steel tools, which has led to increase in the rate of clearing off the taller natural vegetation. Communications and transport services are poor almost everywhere. The coming of the aeroplane has facilitated some kinds of contacts. But it is a vehicle for high-price cargoes, and freight costs do not allow of transport of ordinary native exports by air. Ironically, the development of air communication may even have worsened the economic position of many Western Pacific islands by removing part of the incentive to improve road and sea services. As it is, now that the tide of war logistics has receded, many of the ports of New Guinea and the Solomons are in worse condition than before. Developments in new crops, such as cocoa or 'wet rice' in some areas may raise the productivity of native agriculture there substantially. But in other areas the coconut stands are old and need replacing. The natives gain no royalties from mineral developments. The sellers' market for primary products may not last for many years. All in all, then, while individuals may advance, a general increase of income to substantially higher figures will be difficult to achieve. Yet the interest in higher incomes has developed.

One of the most relevant indices of participation in a Western economy is the capacity to save money as well as to spend it. This is a social as well as an economic phenomenon. It indicates not merely a new set of preferences, but

* Recent proposals for vocational training may start such a development. See R. A. Derrick, *Vocational Training in the South Pacific*, O.U.P. 1953.

New Communications. Natives of Tikopia, in the British Solomon Islands Protectorate, listening to the wireless—an Australophone lent by Amalgamated Wireless of Australia, Ltd. to our expedition and operated by my assistant, Mr. J. Spillius

a conviction that these preferences are justified as against the more conventional older native ways of getting rid of money. Such saving is one of the pronounced features of the native economy of the Western Pacific in the post-war period. In some cases considerable sums have been accumulated. One Mailu village I visited on the south coast of New Guinea had paid £960 into the local savings bank, representing about three months' accumulation. In the Sohano area of Bougainville, according to official information given me, the co-operative societies started with a capital of about £3,000, collected by a European organizer in the form of small subscriptions in a couple of days. Two natives came in with £700 each to invest, not knowing that only limited subscriptions were called for. In New Guinea, the process of capital accumulation has in many cases been given a fillip by War Damage compensation, which was on a generous scale. But in the British Solomon Islands Protectorate, which received no War Damage compensation payments, and where the native people play a lesser role as copra producers, the build-up of savings has been less but not negligible. I heard of one man who gave his employer £500 to invest for him, and while this is exceptional, there must be many Solomon islanders with small capital accumulations. In significant measure, especially in New Guinea and New Britain, some of these capital funds have been invested in productive equipment. A shot-gun for hunting game, a copra-drier, a saw-bench, a transport canoe, a motor-truck, are examples of such investment. One of the most spectacular was the purchase

a year or so ago of a schooner of European type, with a cargo, for £8,500. This was the effort of an organization known as the Toaripi Co-operative Societies Association, using funds they had accumulated mainly from copra sales.

The recent introduction of co-operative societies has distinct possibilities of helping the New Guinea native to strengthen his capital position. After experience of the limitations of co-operative organization in Asia, there is now no great tendency to imagine that such a movement can be a cure for all the social and economic ills of the peasant. But the Western Pacific seems to offer a good field for a moderately conceived programme of native co-operation. For producers' organizations the major crop, copra, lends itself to co-operative handling, since it is fairly easily treated, can be stored with little deterioration, and can be received in any amount. Similarly with trochus shell, *bêche-de-mer* and most of the few other native products. On the consumers' side also, the native co-operative store has some advantages. In particular, its overheads are relatively small compared with those of European stores. Where, as in southern New Guinea, the large European firms have few branch establishments in the villages, and there are no Chinese traders, prospects for development of the co-operative store seem good. Where on the other hand, as in the vicinity of Lae, Rabaul and Honiara, the Chinese are rapidly re-establishing themselves as traders, the success of native consumers' co-operatives may not be easy. In any event, if through a severe fall in the price of copra, or a severe contraction in the native wage-labour force, the amount of native expendable cash were to decrease substantially, the organization of the native co-operatives would suffer and might not be able to stand the strain. Be this as it may, the size of some of these consumers' co-operative societies at present is not negligible. The most successful of them in New Guinea, the Poreporena and Hohodae Co-operative Store, at Hanuabada, had a turnover in 1951 of £16,000, a profit of £1,750 after all costs of administration, etc., had been met (including a monthly wage bill of £35), and it distributed about £250 among its 300 members. The books of this society were kept entirely by its native secretary, as a private job apart from his ordinary work as a government employee. He also acted as auditor for other native societies in the vicinity. From the broader point of view, one of the useful services that the co-operative organization can give is to introduce notions of elementary book-keeping into native trading.

My aim, in giving all these examples, is to bring home to you the reality, and the quality, of the native economic advance in recent years. But my primary concern is not with the economic data as such, but with their social implications. The first point to make here is that the native economic development connotes a wider social horizon. The men of New Guinea or the Solomons—at least the more intelligent and more highly educated of them—no longer look at the things and achievements of the white man's world as being utterly beyond their reach. They see themselves as participants, not simply bystanders, in the sharing out of the goods of civilization. Nor are they any longer content to be passive recipients of the allotted tasks; they want some more creative roles: producing things with their own capital, their own equipment, their own management.

They have recognized, moreover, that with such new roles comes a new dignity, that the assumption of economic responsibility makes for social status.

In this acquisition of new status a double process is at work. On the one hand, there is much greater opportunity than before for individual differentiation. In the old native economic system the *entrepreneur* was a man who channelled the wealth of a group rather than operating on and building up his own private capital. Modern conditions are allowing the emergence of some men into more individualistic roles—as middlemen in trading, as petty capitalists, as organizers of the labour of others. On another line, but as part of the same general process, is the tendency of some of the more highly educated men to assume administrative functions as clerks to Native Councils, or secretaries to co-operative societies. One outcome of such developments may be the formation of a new native social and economic class, with different conceptions of the use of resources, and different standards of consumption, than the mass of their fellows. The members of this class, at the apex of a native economic pyramid, may find support from, and intermingle with, the group of mixed-bloods. Though small in numbers, these mixed-bloods tend to exercise an important influence on the native society, and some of them are often media of communication between European and native in social as well as economic situations.

But against such an interpretation of economic differentiation as an index of growing social differentiation, can be set one important factor. This is the marked tendency to communal solidarity which still displays itself in Western Pacific communities. Despite the decay of so much of the traditional institutional life, economic advance is still conceived very largely as community or group advance. This is partly an expression of an attitude towards one's village or other group which on its more negative side can be called parochialism, and on its more positive side, civic pride. The former can be seen in the narrow, atomistic view which sometimes leads people of a small area to refuse to combine with their neighbours in a Native Council organization. The latter is seen in the care given to the Native Council meeting houses, and in the enthusiasm shown for even an informal co-operative enterprise which gives some concrete achievement in which the whole community can share. In the recreational field one such type of enterprise which is very popular in some areas is the cricket match. A women's cricket match which I saw in November 1951, at Kilakila, for instance, was a matter of great village interest. The two Port Moresby villages of Hanuabada and Elevala came up to play the local side, arriving in motor trucks. Each side had two innings, and the visitors won. Then there was a meal, provided by the hostesses, in the house of their 'cricket-master', the captain, and the guests departed amid much display of good feeling, with formal hand-shaking, waving and cheering. This was entirely an affair of the women. Another even more striking display of civic pride with an economic base took place near Port Moresby one Sunday morning. The occasion was a meeting of expatriate members of the Toaripi Association. They wished to make a further contribution towards the cost of the schooner mentioned earlier. About two hundred people, mostly men, assembled in a clear space among the coconut palms, which had had garlands

A Fish-Drive in native style. Men and women of Tikopia are waiting to net mackerel in a coral boulder trap; their dress on this occasion is only bark-cloth, and their equipment entirely indigenous

placed on their trunks. Some mats and chairs, a table covered with a clean cloth, and flowers stuck in two bottles had all been arranged by the people for the reception of the government co-operative officer, a European, who was to preside at the gathering. Proceedings began with a hymn and a prayer—the hymn, 'A little ship was on the sea' had been informally but appropriately adopted as the co-operative song of the Toaripi. After speeches giving news of the vessel which was about to be sailed down from Brisbane by a Toaripi crew, with a European administrator as master, contributions were handed in. The men were assembled by villages, came up as their names were called, took their contributions from an organizer who had collected them previously, and presented them formally. All gifts were in bank notes, some men giving as much as five pounds, and one man even eleven pounds. The total collected was £136 10s. 0d. At the end a further sum of over ten pounds was handed in, in silver. This was to provide pocket money for the crew, and it was unanimously agreed that this should be sent to them by telegram.

The public character of this presentation, its formal, almost ritual atmosphere, and the organization involved, all show the serious committal to community purpose which marks so many of the large-scale economic enterprises of the New Guinea people, even when they are operating in a money economy. In fact, one can go a step further in interpretation, and describe a number of these enterprises as having a strong symbolic content. This means that their object

Pig Transport. Pigs are highly valued in New Guinea; here natives of Mt. Hagen are carrying one in the conventional way

is not merely economic gain, but an expression of community prestige.* The Toaripi venture seems solidly conceived. But in enterprises of analogous kinds in the Western Pacific the commingling of social with economic goals may lead to inefficient management from the economic point of view.

In all these economic movements the Western Pacific native has preserved his attachment to his social system. This system has suffered many changes, especially on the ritual side. The old institutions of totemism, with their respect for animals and birds with which social groups were believed to be allied, have largely been abandoned. The marriage rules of clan exogamy with their prohibition on union between man and woman of the same unit, have tended to be disregarded or evaded. Rules about theft, adultery, killing, have been radically altered. The relative distribution of compensation and of bodily penalties for offences has been changed. Amounts of property handed over in symbolic exchange for a woman at marriage have been substantially reduced in some cases,† while in others the greater earning power has led to an increase. In some

* This is not novel in the Pacific. A century ago the Maori of New Zealand were building water-mills to grind their wheat into flour, and assembling funds by methods reminiscent of those of the Toaripi. It is significant that one of their aims was often to get a mill which should grind more wheat than that of a rival tribe, and that in consequence of the rivalry and excitement, the work was apt to be poorly done, resulting in some loss of capital. (See Raymond Firth, *Primitive Economics of the New Zealand Maori*, 1929, 458–461.)

† Views expressed by Christian missions have often been responsible for such reduction. At Monum, a village in the Markham valley, I was told that £10 was paid as bride-price if the mission did not object, but that owing to their protests, often only £2 or £3 might be paid. '*Before 'e no savvy talk belong God, 'e on top, too much dear. Nau 'e hearim talk belong God, 'e liklik pay.*'

cases the traditional social system has been looked on by the people themselves as a stumbling-block in the way of their quick attainment of western goods and ways, and they have tried to sweep it away or radically alter it by novel means. Villages have been rebuilt in lines on a military model, the people have been organized into groups, drilled with sticks, given flags, and fitted out with a hierarchy of officers, or even with kings and queens. Dances and other ancient ceremonies have been abandoned. The spectacular rites of the *hevehe* of the Orokolo have been given up by the people, who burned all their masks and regalia. The re-settlement of the Purari people in quite new villages, under the influence of their leader Tomu Kabu, has involved the destruction of the large ceremonial houses which were formerly the centre of the cultural life. Such rejection of traditional elements is in part a recognition, however dim, that modern demands cannot be geared effectively to old ways. The modern type of economic activity, with its emphasis on building-up capital by individuals, individual saving, regular time schedules of work, fine adjustments of price to market conditions, is not easy to fit closely to patterns of kinship obligation, village loyalty and other demands of the old native social system—hence the notion that by starting with a clean slate the people can get at once on to the basis of the new economic order, the benefits of which they desire. But this rejection of traditional custom is as much symbolic as real. The people are not simply casting out their native heritage. They are abandoning one kind of native life, which they have cherished, in order to try and build another more in tune with their wants, as swiftly as possible, with the notion that formal abandonment in itself is part of means to that end.

It is against such a background that the spectacular movements known as 'Cargo Cults' in New Guinea, as 'Marching Rule' in the Solomons, as the 'Naked Cult' and the 'John Frum' movement in parts of the New Hebrides have occurred.* These movements are part of a process of imperfect social and economic adjustment to conditions arising directly or indirectly from contact with the West. They are not mere passive responses, the blind stirrings of people who feel that they are being pushed around. Absurd as they may seem when considered as rational solutions, they are creative attempts of the people to re-form their own institutions, to meet new demands or withstand new pressures. In the broadest sense their ends are to secure a fuller life. Some of these ends are defined in terms of economic prosperity—the receipt of the 'cargo' which is to equip everyone with all the goods he wants. Some emphasize political autonomy—with freedom from the hampering machinery of white government, and enlistment under the banner of 'Marching Rule' or other leaders. Some emphasize the importance of more satisfactory ritual relationships—the forging of new ties between man and God, or man and the spirit world. Different combinations of

* There is a long history of such movements, both in the Pacific and outside it, and a considerable literature, mainly descriptive, has grown up on the subject. (See South Pacific Commission, *Bibliography of Cargo Cults and other Nativistic Movements in the South Pacific* compiled by Ida Leeson. Technical Paper No. 30, July, 1952. *Cf.* also Raymond Firth, *Elements of Social Organisation*, 1951, 74–75.)

these elements occur in different areas. But some component of freer economic choice is usually involved. Usually, too, there is a tendency for some rejection of European influence and guidance—even of the missions. This rejection, psychologically an equivalent of the adolescent's throwing off of the parents' authority, is the basis for the term 'nativistic' often applied to such movements. While in earlier periods this aspect often involved the notion of a reversion to traditional institutions—a revival of the golden age—in later periods it has represented a more forward-looking type of essentially new native society. Symbolic features often appear in highly developed form: language, gestures, material objects associated in some elaborate and arbitrary way with the organization or with its aims. Sometimes as signs of real participation in the movement there appear marked personality disturbances—bodily tremors or trance-like states. Characteristic of these movements is an element of fantasy, of desire outrunning performance, coupled with a conviction of faith in achievement. Linked with this too is a cohering of the people in new group patterns which in themselves are regarded as having virtue.

In these respects there is no absolute hard-and-fast line to be drawn between such movements and the mass economic enterprises discussed earlier. They too have their symbolic elements, which in some cases may block positive material achievement. But to give an economic and a symbolic value may be a good thing. It may provide an extra spur to activity, and may facilitate rather than inhibit realization. The object of those responsible for administrative control then should be to see that as far as possible there is a solid basis of technical training and general education to give reasonable chances of judgment and achievement to the native peoples when, as is inevitable from time to time, they try to re-define their goals in their own terms.

In all this, some basic values of the native social system will continue to be preserved and used. Throughout the Western Pacific there is retention of the essential features of the kinship system, with its complex rights and obligations as a pattern for working groups, and for the multitude of small services of daily life, whether in village or in town or on plantation. Despite the widespread use of money, there is still adherence to the need for symbolic equivalents such as pigs or armshells or strings of shell discs to act as 'native money' and give some kinds of transactions the proper authenticity. Even the very forms of village alignment of houses may be regarded as a proper part of the correct plan for living.* The Western Pacific native is not always sure about the adequacy of his social system, and is content to let some parts of it change. But some of its values, especially those connected with relationships between traditional social units, he treats as basic. They provide a range of interests and satisfactions, a pattern for arranging people in groups which gives impetus to many kinds of economic and social action. The importance of continual study of them will be obvious.

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* Raymond Firth, "*Notes on the Social Structure of some South-Eastern New Guinea Communities*," Man. Vol. LII, May and June, 1952.

DISCUSSION

MR. B. BENEDICT: I should like to know what facilities there are for education of the natives in the Western Pacific.

THE LECTURER: I should say there is a fairly widespread system of primary education, mostly in the vernacular; that there is a growing tendency to give instruction in English as a second language, but by Western standards this is still extremely limited. The standards are still very low. On the other hand, there are institutions which do provide education of a moderately high level; they are partly mission-sponsored. Some boys from them can take part in ordinary English conversations on matters of policy and intellectual discussion.

For the actual numbers of schools, their finance and so on, I think I shall have to refer you to the appropriate Colonial reports and material.

E. R. LEACH, M.A., PH.D.: Might I ask how far there are native leaders who have any clear-cut political objectives, and whether they have any rational views as to what the political future of their own people might be?

THE LECTURER: That is not an easy question to answer, because I do not think I can claim any considerable personal acquaintance with the native leaders. I should say that on the whole their political horizon is still fairly limited; that they are still largely thinking in rather immediate terms of the advancement of their tribal group, of their own section of people, to more economic achievement and some political control of local affairs.

One leader whom I did meet could talk only in pidgin-English, and that in itself, of course, is a restrictive medium. I did not get the impression, although he was a man of very strong personality, that he was thinking in terms of New Guinea as a whole. He certainly was thinking in fairly definite regional terms, not merely of his own advancement but of the advancement of the people of his own linguistic group; but I believe that one or two other leaders in New Guinea certainly can think in a much wider frame of reference.

The leaders have had very little experience. When they have had experience on the Legislative Council—which is quite a new move—and when they see the nature of the problems arising all over the territory (they have had, as yet, very little comparative knowledge), then I would not be at all surprised if, within the next five to ten years, a number of these leaders really develop what you might call political consciousness in respect of the whole of their territory and not merely of their local area.

As far as a political plan is concerned, I should think that that also is of a very embryonic order. I imagine at the present time there is very little more than the feeling that New Guinea people should have more to say in matters of policy. Where there is anything in the nature of a political programme or a political plan, it may have in it some elements of symbolic fantasy of the kind associated with 'Cargo Cults', and similar movements. There are small-scale plans, but these are not as yet of a very practical kind. I certainly think it would be true to say that there are possibilities at the top of the native leadership for what we would regard as a realistic appreciation of the political scene—but I speak here in the presence of Dr. Mair, who knows much more about these things than I do.

MR. G. B. STIGANT: Professor Firth has given us many examples of changes of institutions and customs. I was particularly interested in the clothing aspect. From another part of the world I heard recently of some very sensible native dresses for children being discontinued in favour of some horrid mass-produced rompers. Perhaps Professor Firth could assure us that they are not being swamped by too much of that sort of thing in the Western Pacific. I think he has made clear to all of us what a terrific responsibility does rest on the educators, both secular and religious. I myself have mentally substituted the words 'spiritual value' when he has mentioned symbolical value; I do not know whether we are grasping at the same idea.

THE LECTURER: I am no authority on children's rompers, and I fear that the hands of the clock have moved too far in the Western Pacific. The time has gone when Europeans can control effectively what native peoples will wear, except by economic means, by providing only certain kinds of goods in the retail stores, and by advice such as fathers give to children in this country—which is presumably just as likely to be ignored in the Western Pacific as it is in the Western world! I think a demand definitely has grown up for a European type of clothing in many, though not in all, cases. They adapt, of course, and they combine native elements. One of my strongest memories of Tikopia, when I left twenty odd years ago, was of young men with flowing hair clad in bark cloth. Nine months or so ago, I saw a Tikopia policeman on leave sitting on the beach with nicely laundered white shorts, a silk shirt, a wreath of flowers round his shorn head, and a ukelele on his knee. That, for me, symbolized the irrevocable character of the changes in clothing in the Western Pacific.

I think the only thing to do, if one wants them to get sensible ideas about clothing, is to see as far as possible that sensible clothing gets into the retail stores. Then it is for the people themselves to make their choice.

MR. CEDRIC DOVER: I should very much like to know what is being done on behalf of native education, in native, and not in English, terms; that is to say in terms of the development of native languages and cultures.

THE LECTURER: I think the answer to Mr. Dover's question must largely be in terms of native language. I would say, from my rather small knowledge of the subject, there is not a great deal of development of education in the formal sense, in terms of native cultural values. I think, however, there is some attempt on the part of the more enlightened missions and government officials to try to weld together native values and European values. For example, I referred to this Toaripi Association meeting. There were native values definitely accepted there as to the form in which the contributions were made. The money could have been handed over the counter in the ordinary way and entered in a book, but European just as native felt there was a certain appropriateness in doing it in the other way.

I think also that in the mission schools there is an attempt to blend together native dancing with European notions of recreation. There is a very interesting attempt in one educational institution, a training school not far from Port Moresby, to combine native art themes with the European technique of water-colour poster painting and so on, and some really interesting work in design has emerged under the tutelage of one particular man, an artist himself, who is trying to develop things in that way.

On the whole, I think you can hardly expect an educational system sponsored by Europeans to attempt to develop to any large extent instruction in native values. Nor, I think, can it be expected that a large number of natives will do this, because at the present time they are reaching out for instruction in Western institutions, and in Western technology. Not that they themselves wish to leave the others behind, but as yet they do not see any very effective way of welding the two sets of values together in an educational system of the formal school type.

On the language side, the situation is rather different. For many years missionaries have produced work of a lexicographical kind, grammars and so on, and a great deal of the language of instruction is still the vernaculars. In that way, then, there is education in native language. I would not say that it is education aimed at preserving the native language; but, in order that education may be carried on the native language is still used.

MR. GURTH HIGGIN: I should like to ask Professor Firth a question regarding the background of the economic development of these native areas. The natives are apparently taking to European goods and indulging in European economic types of activity; to what extent have they taken up along with this the values and attitudes which lie behind the European form of economic organization? I refer to

such things as belief in the value of work for its own sake, of present effort for future reward or achievement—those things that are summed up in the Protestant ethic. For instance, was the saving of money that the lecturer mentioned saving by default? Was it due to the fact that their present needs for goods were all satisfied, or was it done with the idea of curtailing present consumption on which they would have liked to spend for the sake of greater future reward? In short, has the spirit of capitalism accompanied these capitalistic practices?

THE LECTURER: I would say that the answer is both. I hesitate to try to give anything but a very tentative answer because Dr. Belshaw has been collecting material on the spot there, and he has a vastly greater experience than I. But I would say that it is, in a sense, a saving which is surplus to requirements. That is why I mentioned war damage compensation which gave a sudden bonus from the sky, as it were. On the other hand, I think it is quite true that the spirit of capitalism is developing among a number of these people. There seems to be among Europeans a notion that you can see differential development in different regions. I do not have enough experience of that to know, but I think there may well be something in the suggestion that certain types of culture allow the development of the ethic of capitalism, of individualistic enterprise, much more easily than others. But that is also a matter where we need far more information than we have at present. If I could just underline partly what Mr. Higgin said and partly what I myself said, there is a very great need for more information systematically collected by proper research on all these matters, not only theoretically but practically, in order to help the Government when it wants to invest capital or personnel, the labour of co-operative officers and others, in these kinds of enterprise. Without the proper answers to those questions, I think there might well be quite a lot of unproductive investment.

MR. A. C. MAYER: I should like to ask how far the governments concerned have recognized the existence of 'Cargo Cults', and if they have tried to canalize the energy and desire for adjustment which these are said to represent into their own schemes of development?

THE LECTURER: I would say that the governments have been rather baffled by 'Cargo Cults', and similar movements. As time has gone on, however, they have begun to recognize the positive as distinct from the negative aspects of the movements, and there has been some attempt in different places to use these and incorporate them in development schemes. That has not altogether been easy because of the reactions of some of the leaders, who have wanted to reject all European advice, even good European advice. On the other hand, I have seen at least one very thoughtful plan drawn up by a Western Pacific official for doing precisely what the questioner suggested, namely, bringing a movement into the general development plan and using the impetus given to forward economic achievement of a concrete kind.

ROGER PILKINGTON, M.A., PH.D.: I should like to ask Professor Firth whether the economic trends or the work of the missions have had any marked result in changing the status of women. Are they merely adjuncts to vegetable growing and so on, or has there been any entry of them into other forms of life?

THE LECTURER: I am afraid I really know very little about that particular aspect of the social process. I think there have been changes. I have seen one or two symptoms which indicated changes, and I think the economic developments probably will tend to change the role of women and give them more social functions. But of course it must be remembered that what, superficially, has seemed to be a somewhat downtrodden role for women, in practice very often has not been so. Therefore, it is not very easy to visualize the transition from the somewhat passive role, as it looks superficially, to the much more active role.

A vote of thanks to the Lecturer was carried with acclamation: and, another having been accorded to the Chairman, the meeting ended.

OBITUARY

LORD WESTWOOD

We record with regret the death at the age of 73 of the Rt. Hon. William Westwood, first Baron Westwood of Gosforth, O.B.E.

Lord Westwood started work in a jute-mill at the age of ten; he was subsequently articled to a firm of shipbuilders in Dundee, and was soon drawn into the trade union movement to the service of which much of his life was dedicated. From 1910 to 1922 he was Secretary of the Dundee Labour Representation Committee, and he was President of the Engineering and Shipbuilding Trades Federation from 1933 to 1936, and of the Confederation of Shipbuilding and Engineering Unions from 1936 to 1939.

He was raised to the peerage in the Second World War, during which he was principal labour adviser, director of contract labour, and chief industrial adviser in the department of the Admiralty concerned with the building of merchant ships. In 1946 he was appointed Chairman of the Mineral Development Committee, under the Ministry of Fuel and Power.

Lord Westwood was elected a Fellow of the Society in 1939.

MR. DONOUGH O'BRIEN

We record with regret the death on Wednesday, 23rd September, of the Honourable Donough O'Brien, at the age of 74. Mr. O'Brien was the fourth son of the fourteenth Baron Inchiquin, K.P., and his family's descent in unbroken male line from the Prince of Thomond who became Supreme Monarch of Ireland in 1002 was the subject of his published *History of the O'Briens from Brian Boroimhe*. He was a keen antiquarian and an honorary member of the Royal Society of Miniature Painters. The 385 miniatures reproduced in his book *Miniatures in the 18th and 19th Centuries*, which was reviewed in the *Journal* in November, 1951, were all from his own large collection.

Mr. O'Brien died at Alexandria where he had lived for a number of years. He was elected a Fellow of the Society in 1951.

NOTES ON BOOKS

THE OXFORD BOOK OF ENGLISH TALK. *Edited by James Sutherland. Oxford University Press*, 1953. 18*s net*

Here is a happy conjunction. The Oxford University Press is noted for its authoritative and well-produced books: and Professor James Sutherland is noted for his scholarly and elegantly yet incisively written works on English literature, especially that of the approximate period 1660–1790, although he has, before as after that period, written enough of quality to make a lesser man's reputation and has also, as here, shown a lively, modern, well-informed familiarity with language as well as with literature. He combines the best characteristics of the Scottish universities with those of Oxford. He is both erudite and humane, both penetrating and human; moreover, he adds a Gallic lucidity of style. To good sense he joins a Celtic awareness of the beauty and the mystery of life, notably of human lives.

The Oxford Book of English Talk forms a most instructive companion to literary English; some of it is, in fact, literary English, because it indicates the bewildering variety and the effortless fluidity of English speech at all levels, including the highest. We see the silent Englishman at his far from silent best: not talking his own or anyone

else's head off, yet other than reticent: and we see him doing it from early in the fifteenth to midway in the twentieth century. We see it all the more clearly and perceptively in the light of the clear, perceptive preface, of the terse, accurate, sufficient footnotes and the concluding notes and references. The editor has remembered that he is guide, not dictator; helper, not delayer nor obscurer.

To pick out the plums would be impossible where all is fruity; to pick out authors would be invidious, for this is a team. Scholar and student, sociologist and philologist, historian and journalist—but, above all, those invaluable 'forgotten people', the general intelligent public—will rejoice in this well-balanced book. That the reviewer would have liked to see something of Galsworthy and Wells and Compton Mackenzie is merely to state an idiosyncrasy. That is the worst he can say: and a remarkably poor worst it is: yet it is the best he can do.

E. P.

PHOTOGRAPHY—ITS MATERIALS AND PROCESSES. *By C. B. Neblette, Fifth Edition. Macmillan*, 1953. 47*s* 6*d*

This is the fifth edition of a work originally published in 1927. I well remember that first edition. It gave guidance with clarity and adequate references on many problems that the photographic technician comes up against when he ventures away from the photographic manufacturer's basic instructions, as he must if his photography is to become an obedient and precise tool for purposes other than conventional picture making. As an example, the diagram showing in graphical form just what happens to the various densities of a negative in different types of intensifier greeted me like an old friend when I opened the fifth edition.

The first edition of Neblette differed from most other text-books available at that time in going very completely into those aspects of the science and practice of photography on which other reading had left me hazy. This was perhaps to be expected, for Neblette is the head of the department of photographic technology at the Rochester Institute of Technology and his many years of teaching and organizing courses in photographic techniques of every type have given him unique opportunities to discover where the conventional text-book is inadequate. The majority of photographic text-books are very largely paraphrases one of another. If you have mastered one, you can dispense with the others. Neblette's book, however, is a different matter—it is a member of that very limited class of perhaps half-a-dozen works which are 'musts' for the library of the photographic technician.

This fifth edition, perhaps twice the length of the first, is like it clear, concise, informative, and authoritative, and is completely up-to-date. One-third of the text is devoted to colour photography where incidentally the ingenious use of colour filters in conjunction with the colour diagrams makes very clear the difficult concepts of colour masking. This and other touches reveal the experienced teacher. A minor criticism of the chapter on three-colour separation negatives is that the now discredited arguments for evenly transmitting filters, here set out in some detail, could with advantage be omitted. The modern theory of colour photography clearly described in Chapter 33 is sufficiently difficult for the student to grasp, without cluttering up his mind with conceptions which later on he must unlearn. The chapter on diffusion—transfer reversal processes—is the best account of the history and applications of this increasingly important technique that I have encountered. Some consideration of the problems involved in copying existing photographic prints in such a way that the copy is indistinguishable from the original is the only omission I regret—but this is probably a purely personal regret, for the subject happens to interest me.

Reviewers often call attention to misprints when they can find little else to criticize so I would point out that 'hydrophilic' (p. 112) is so spelt—even in America!

Fourteen well-known specialists have helped Neblette to give in this fifth edition authoritative coverage of all the basic materials, techniques and equipment used in modern photography.

D. A. SPENCER

SHORT NOTES ON OTHER BOOKS

THE ART OF LETTERING. *By Harold Deighton. London, Batsford, 2nd edition, 1953. 12s 6d*

Very little change has been made in this edition. The book is intended primarily for use in schools and has an introductory section on the history of letter forms followed by detailed practical instructions, both parts being well illustrated. Too much stress is perhaps laid on mechanically constructed letters and, unfortunately, the mannerisms of the text, and the very low standard of some of the examples, will alienate the sensitive student.

LETTERING ART IN MODERN USE. *By Raymond A. Ballinger. New York, Reinhold Publishing Corporation, 1952. $12. London, Chapman & Hall, 96s*

Mr. Ballinger's text, and his instructional pages, are of little value but the major part of the book is taken up by very interesting examples of applied lettering. A good proportion of these examples are historical, while the remainder show contemporary advertising, packaging, and display usage. Book work, and modern calligraphy, are not included. The reproductions are excellent.

MICHAEL OLIVER

FROM THE JOURNAL OF 1853

VOLUME 1. *7th October*, 1853

From Queries proposed by the Society of Arts, 4th May, 1853, on The Paper Duty

The following comments were among those received in respect of enquiries addressed by the Society to a number of authors on the subject of the Paper Duty.

Mr. Charles Dickens says, 'The duty on paper is a considerable deduction from the profits of any periodical publication, and I suffer considerably from it in the case of *Household Words*. But I make that journal as good as I can, and if the duty were taken off to-morrow, could make it no better. Neither would it be possible to reduce the price of it to the public. I should put more money into my own pocket, and should be very glad to do that; but I cannot honestly say that I believe the heavily taxed public would derive any benefit from a process so very agreeable to myself'.

The Right Hon. T. B. Macaulay, M.P., says, 'I have never paid the smallest attention to the details of the book trade, and am quite unable to answer, from my own experience or observation, any of the queries addressed to authors. I have a strong general impression that the paper duty and the machinery by which it is collected obstruct the progress of a very beautiful and useful manufacture; and I heartily wish that the Chancellor of the Exchequer may soon be able to spare the revenue derived from this source'.

LIBRARY ADDITIONS

CRAFTS AND LIGHT MANUFACTURES

HUNTON, W. GORDON. English decorative textiles: tapestry and chintz; their design and development from the earliest times to the nineteenth century. *John Tiranti and company*, 1930.

JENNETT, SEAN. The making of books. *Faber*, 1951.

SHIRLEY, ALFRED JAMES, *and* SHIRLEY, A. F. Handcraft in metal: a textbook for the use of teachers, students and craftsmen . . . . 6th ed. *Batsford*, 1953.

FINE ARTS (GENERAL)

GRINTEN, EVERT VAN DER. Enquiries into the history of art-historical writing: studies of art-historical functions and terms up to 1850. *Venlo, the author*, [1952?]

PAINTING, DRAWING, SCULPTURE AND ENGRAVING

ARTS COUNCIL OF GREAT BRITAIN. Epstein: an exhibition held at the Tate Gallery; [catalogue, with an introduction by Philip James] 2nd ed. [*Arts Council*, 1952.]

BRABY, DOROTHEA. The way of wood engraving. *Studio publications*, 1953.

BURY, ADRIAN. Shadow of Eros: a biographical and critical study of the life and works of Sir Alfred Gilbert . . . . *Dropmore press*, 1952.

CONWAY, *Sir* MARTIN, *editor*. Catalogue of the loan exhibition of Flemish & Belgian art, Burlington House, London, 1927, a memorial volume, edited by Sir Martin Conway, M.P. Section on pictures by Tancred Borenius . . . . section on tapestry by A. F. Kendrick, section on drawings and engravings by Campbell Dodgson. *Country life, and the Anglo-Belgian union*, 1927. (Presented by Mrs. L. W. Nicholls.)

CORY, HANS. Wall paintings by snake charmers in Tanganyika. *Faber*, 1953.

GRANT, MAURICE HAROLD. A dictionary of British sculptors, from the xiiith century to the xxth century. *Rockliff*, 1953.

HILL, ADRIAN. The pleasures of painting; with practical demonstrations. *Pitman*, 1953.

MACKENZIE, A. D. The Bank of England note; a history of its printing. *Cambridge, C.U.P.*, 1953. (Presented by the author.)

MERLI, JOAN. Raquel Forner. *Buenos Aires, Editorial Poseidon*, [1952]. (Presented by Miss Raquel Forner.)

ORBACH, DEREK ISRAEL. Leonardo da Vinci, (1452–1519): the Madonna of the Rocks. *Folio publications*, 1952. (Presented by the author.)

SEVERIN, MARK FERNAND. Your wood-engraving. *Sylvan press*, 1953.

SHIPP, HORACE. The Dutch masters. *George Newnes*, 1952.

COSTUME

CUNNINGTON, CECIL WILLETT, *and* CUNNINGTON, PHILLIS. Handbook of English mediæval costume. *Faber*, 1952.

PHOTOGRAPHY

DALZELL, JOHN MOIR. Practical stereoscopic photography. 2nd ed. revised and enlarged by E. F. Linssen. *Kingston Hill, Surrey, Technical press*, 1953.

NEBLETTE, CARROLL BERNARD. Photography: its materials and processes. 5th ed. *Macmillan*, 1953.

ROYAL PHOTOGRAPHIC SOCIETY. The centenary of the Royal Photographic Society of Great Britain . . . . a brief history of its formation, activities and achievements, 1853–1953. *R. P. S.*, [1953].

HISTORY AND TOPOGRAPHY

ARMSTRONG, FRANK. Hull and district sketchbook. *Anlaby, E. Yorkshire, the artist*, 1953. (Presented by the artist.)

BARRINGTON, MICHAEL. Blaye, Roland, Rudel and The Lady of Tripoli: a study in the relations of poetry to life, A.D. 731–1950. *Salisbury, Bennett bros.*, 1953.

LONDON COUNTY COUNCIL. Commemorative tablets on houses of historical interest. *L.C.C.*, [1952].

PEARCE, JOSEPH PEARCE. The romance of ancient Leverpoole. *Liverpool, Philip*, [1947?]. (Presented by the author.)

PEVSNER, NIKOLAUS. South Devon. *Harmondsworth, Penguin books*, 1952.

PEVSNER, NIKOLAUS. County Durham. *Harmondsworth, Penguin books*, 1953.

Some Activities of Other Societies and Organizations

MEETINGS

MON. 5 OCT. Engineers, Society of, at the Geological Society, Burlington House, W.1. 5.30 p.m. S. F. Smith: *Surface Finish and its Measurement by Electronic Methods.*

Imperial Institute, S.W.7. 5.45 p.m. Mr. R. M. Downes: *Living with a West African Tribe.*

TUES. 6 OCT. Engineering Inspection, Institution of, at the Technical College, Coventry. 7.30 p.m. P. J. Young: *The Reclamation of Porous Castings by Impregnation.*

International Affairs, Royal Institute of, 10 St. James's Square, S.W.1. 1.30 p.m. Prof. Bernard Lewis: *Communism and Islam.*

WED. 7 OCT. Building Centre, 26 Store Street, W.C.1. 12.45 p.m. Film Show: *The Story of the Manufacture of Coated Slag Macadam with supporting films about Slag Macadam.*

Engineering Inspection, Institution of, at the Chamber of Commerce, New Street, Birmingham. 7.30 p.m. Inspection in Industry.

Eugenics Society, at the Royal Society, Burlington House, W.1. 5.30 p.m. James Shields: *Personality Differences and Neurotic Traits in Normal Twin School Children.*

Kinematograph Society, British, at the G.B. Theatre, Wardour Street, W.1. 7.15 p.m. R. J. Spottiswoode: *Considerations of Wide Screen and Stereo-Cinematography.*

Public Analysts, Society of, at The Chemical Society, Burlington House, W.1. 7 p.m. (i) G. Middleton and Dr. R. E. Stuckey: *The Preparation of Biological Material for the Determination of Trace Metals*: (ii) Dr. H. C. Lockwood: *Determination of Lead in Foodstuffs.*

Textile Institute, at the Technical School, Colne. 7.30 p.m. J. Wilson: *The Scope and Purpose of the British Rayon Research Association.*

THURS. 8 OCT. International Affairs, Royal Institute of, 10 St. James's Square, S.W.1. 8 p.m. Dr. Edvard Hambro: *The International Court of Justice in the Present-day World Organisation.*

Petroleum, Institute of, 26 Portland Place, W.1. 5.30 p.m. J. R. Joyce: *Methods of Atomizing Liquid Fuels.*

Physical Society, at the Science Museum, S.W.7. 5.30 p.m. Symposium: *Superconductivity.*

Textile Institute, 10 Blackfriars Street, Manchester, 3. 7 p.m. Miss Janette B. Reid: *Weathering of Acetate Rayon.*

FRI. 9 OCT. Television Society, at 164 Shaftesbury Avenue, W.C.2. 7 p.m. C. B. B. Wood: *Recording Television Programmes.*

MON. 12 OCT. Imperial Institute, S.W.7. 5.45 p.m. Mr. R. E. Spivey: *Three Years' Service in the Antarctic with the Falkland Islands Dependencies Survey.*

TUES. 13 OCT. International Affairs, Royal Institute of, 10 St. James's Square, S.W.1. 1.30 p.m. M. Bertrand de la Salle: *The French Press since the War.*

Japan Society of London, at the Victoria & Albert Museum, S.W.7. 5.30 p.m. H. McAleavy: *A Japanese View of Shanghai in 1862.*

Manchester Geographical Society, 16 St. Mary's Parsonage, Manchester, 3. 6.30 p.m. Mr. T. W. Freeman: *The Irish Emigrant.*

Preceptors, College of, 2 & 3 Bloomsbury Square, W.C.1. 6 p.m. J. Hembling: *Nature Study in the Junior School.*

Purchasing Officers' Association, at the Royal Society of Arts, W.C.2. 6.30 p.m. Mr. Script: *What the Foundryman thinks of the Buyer.*

Textile Institute, at the Municipal Technical College, Bolton. 7.30 p.m. A. W. Bayes: *Checking the Product.*

At the Midland Hotel, Bradford. 7.15 p.m. G. F. Raper: *The Autoleveller.*

At the Electricity Showrooms, Union Street, Oldham. 7.30 p.m. W. A. Dutton: *The Man-Made Fibres and Fibre Blends in the Hosiery Industry.*

WED. 14 OCT. Kinematograph Society, British, at the G.B. Theatre, Wardour Street, W.1. 7.15 p.m. H. Purcell: *The Production of Film Strips in Colour with Sound.*

Petroleum, Institute of, 26 Portland Place, W.1. 5.30 p.m. Dr. F. P. Bowden: *The Friction of Solids.*

Sanitary Institute, Royal, 90 Buckingham Palace Road, S.W.1. 2.30 p.m. A. W. Anderson: *The Siting, Construction and Management of Modern Abattoirs.*

THURS. 15 OCT. Chadwick Trust, at the Royal Society of Arts, W.C.2. 5.30 p.m. C. J. Regan: *Air Pollution.*

OTHER ACTIVITIES

NOW UNTIL SAT. 17 OCT. Photographic Society, Royal, 16 Princes Gate, S.W.7. Centenary Exhibition: *Pictorial Photography.*

NOW UNTIL SAT. 14 NOV. Bethnal Green Museum, Cambridge Heath Road, E.2. Thomas Bewick Bicentenary Exhibition.

NOW UNTIL SUN. 17 JAN. 1954. Science Museum, S.W.7. Exhibition: *Navigation To-day.*

NOW UNTIL APR. 1954. Victoria & Albert Museum, S.W.7. Exhibition: *Bazaar Painting from Calcutta.*

WED. 7 OCT. Fuel, Institute of, at the Institution of Mechanical Engineers, Storey's Gate, S.W.1. 5.30 p.m. Dr. Harold Hartley: *The Domestic Appliance Industry and Fuel Usage.*

WED. 14 OCT. Building Centre, 26 Store Street, W.C.1. 12.45 p.m. Film Show: (i) *Joints which Move*; (ii) *Joints for Civil Engineering and Building.*

WED. AND THURS. 14 AND 15 OCT. Coal Utilisation Council, at the Royal Hall, Harrogate. 1953 Convention: *The Use of Solid Fuel in the Home.*

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